The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1.   A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile:

(i)   identifying the colors represented in the tile;

(ii)   comparing the required number of masks with a threshold number of masks;

(iii)   if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile using one or more of the techniques selected from the group consisting of fills and masks.

2.   The method of Claim 1 further comprising:

for each tile:

if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index.

3.   The method of Claim 2, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a)   determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;

(b)   selecting the color identified in (a) as the background color for the tile;

(c)   generating computer-readable instructions to represent the smallest rectangular area in the tile with the original bits per pixel or an index.

4.   The method of Claim 3 further comprising generating computer-readable instructions to fill the tile with the background color if the background color is not the default color.

5.   The method of Claim 2, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a)   determining whether a data savings is achieved if an index is used to represent the tile;

(b)   if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

(c)   if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

6.   The method of Claim 1, wherein the threshold number of masks equals the original number of bits per pixel representing the image.

7.   The method of Claim 1, wherein the threshold number of masks is user-defined as a user input or system configuration.

8.   The method of Claim 1, wherein the threshold number of masks is a fixed number less than the original number of bits per pixel.

9.   The method of Claim 1, wherein generating computer-readable instructions to represent a tile using one or more of the techniques selected from the group comprising fills and masks comprises:

(a)   determining whether there are no default-colored pixels in the tile and whether a non-default background should be chosen for the tile;

(b)   if there are default-colored pixels in the tile or if a non-default background should not be chosen, selecting the default color as the background color for the tile;

(c)   if there are not default-colored pixels in the tile and a non-default background should be chosen, selecting a non-default color for the background and generating computer-readable instructions to fill the tile with the selected non-default background color;

(d)   determining whether there are any non-background colors in the tile;

(e)   if there are any non-background colors:

(i)   selecting a non-background color;

(ii)   generating computer readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask;

(iii)   repeating steps (i) and (ii) for each additional, if any, non-background color.

10.   The method of Claim 9, wherein the area of the tile represented with the selected non-background color as a mask is the entire area of the tile.

11.   The method of Claim 9, wherein the area of the tile represented with the selected non-background color as a mask is a minimal area within the tile in which the non-background color is located.

12.   The method of Claim 11, wherein the minimal area within the tile in which the non-background color is located is a rectangular area determined by the minimum and maximum x and y values in the tile for the non-background color.

13.   The method of Claim 1, wherein generating computer-readable instructions to represent a tile using one or more of the techniques selected from the group comprising files and masks comprises:

(a)   selecting a background color;

(b)   if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color; and

(c)   for each non-background color, if any, in the tile, generating computer-readable instructions to represent the pixels in an area of the tile with the non-background color as a mask.

14.   The method of Claim 13, wherein the background color is selected arbitrarily from the colors identified in the tile.

15.   The method of Claim 13, wherein the background color is the color which has the greatest number of pixels in the tile.

16.   The method of Claim 13, wherein the background color is the color for which the rectangle bounding the pixels of that color within the tile is the largest.

17.   The method of Claim 13, wherein the background color is the color identified in the tile which, when represented as a mask, compresses the least.

18.   The method of Claim 1, wherein generating computer-readable instructions to represent a tile using one or more of the techniques selected from the group comprising fills and masks comprises:

for each renderable color in the tile, generating computer-readable instructions to represent the pixels in an area of the tile with the renderable color as a mask.

19.   A method of reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the method comprising:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile:

(i)   identifying the colors represented in the tile;

(ii)   comparing the required number of masks with a threshold number;

(iii)   if the required number of masks is less than the threshold number of masks,

(A)   selecting a background color;

(B)   if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

(C)   determining whether there are any non-background colors in the tile; and

(D)   if there are any non-background color in the tile:

(1)   selecting a non-background color;

(2)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

(3)   repeating (D)(1) - (D)(2) for each additional non-background color.

20.   The method of Claim 19 further comprising:

for each tile:

if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index.

21.   The method of Claim 20, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a)   determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;

(b)   selecting the color identified in (a) as the background color for the tile;

(c)   generating computer-readable instructions to represent the smallest rectangular area in the tile with the original bits per pixel or an index.

22.   The method of Claim 21 further comprising generating computer-readable instructions to fill the tile with the background color if the background color is not the default color.

23.   The method of Claim 20, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a)   determining whether a data savings is achieved if an index is used to represent the tile;

(b)   if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel; and

(c)   if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

24.   The method of Claim 19, wherein the area of the tile represented with the selected non-background color as a mask is the entire area of the tile.

25.   The method of Claim 19, wherein the area of the tile represented with the selected non-background color as a mask is a minimal area within the tile in which the non-background color is located.

26.   The method of Claim 25, wherein the minimal area within the tile in which the non-background color is located is a rectangular area determined by the minimum and maximum x and y values in the tile for the non-background color.

27.   A method of reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the method comprising:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile:

(i)   identifying the colors represented in the tile;

(ii)   comparing the required number of masks with a threshold number of masks;

(iii)   if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile with each of the identified colors as a mask.

28.   The method of Claim 27 further comprising:

for each tile:

if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index.

29.   The method of Claim 28, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a)   determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;

(b)   selecting the color identified in (a) as the background color for the tile;

(c)   generating computer-readable instructions to represent the smallest rectangular area in the tile with the original bits per pixel or an index.

30.   The method of Claim 29 further comprising generating computer-readable instructions to fill the tile with the background color if the background color is not the default color.

31.   The method of Claim 28, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

(a) determining whether a data savings is achieved if an index is used to represent the tile;

(b) if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel; and

(c) if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

32. The method of Claim 27, wherein the area of the tile represented with the selected non-background color as a mask is the entire area of the tile.

33. The method of Claim 27, wherein the area of the tile represented with the selected non-background color as a mask is a minimal area within the tile in which the non-background color is located.

34. The method of Claim 33, wherein the minimal area within the tile in which the non-background color is located is a rectangular area determined by the minimum and maximum x and y values in the tile for the non-background color.

35. A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i) identifying the colors represented in the tile;

(ii) determining whether a data savings can be achieved by using masks to represent the tile; said data savings determination based on the required number of masks and a threshold number of masks;

(iii) if a data savings is possible,

(A) selecting a background color;

(B) if the background color is needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

(C) determining whether there are any non-background colors in the tile; and

(D) if there are any non-background colors in the tile:

(1) selecting a non-background color;

(2)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

(3)   repeating (D)(1) - (D)(2) for any additional non-background color, if any, in the tile.

36.   A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile:

(i)   identifying the colors represented in the tile;

(ii)   determining whether a data savings can be achieved by using masks to represent the tile, said data savings determination based on the required number of masks and a threshold number of masks;

(iii)   if a data savings is possible,

(A)   selecting a color in the tile;

(B)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected color as a mask;

(C)   repeating steps (A)-(B) for each additional identified color, if any, in the tile.

37.   A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method of comprising:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile;

(i)   identifying the colors represented in the tile;

(ii)   determining whether a data savings is achievable using an index to represent the colors in the tile; and

(iii)   if a data savings is achievable, representing the tile using an index.

38.   The method of Claim 37, further comprising:

for each tile:

if a data savings is not achievable, using the original data bits to represent the tile.

39. A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i) identifying the colors represented in the tile;

(ii) comparing the required number of masks with a threshold number of masks;

(iii) if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile using one or more of the techniques selected from the group consisting of fills and masks.

40. A system for reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i) identifying the colors represented in the tile;

(ii) comparing the required number of masks with a threshold number;

(iii) if the required number of masks is less than the threshold number of masks,

(A) selecting a background color;

(B) if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;
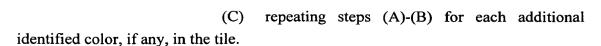
(C) determining whether there are any non-background colors in the tile; and

(D) if there are any non-background color in the tile:

(1) selecting a non-background color;

(2) generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

(3) repeating (D)(1) - (D)(2) for each additional non-background color.

41. A system for reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i) identifying the colors represented in the tile;

(ii) comparing the required number of masks with a threshold number of masks;

(iii) if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile with each of the identified colors as a mask.

42. A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i) identifying the colors represented in the tile;

(ii)   determining whether a data savings can be achieved by using masks to represent the tile; said data savings determination based on the required number of masks and a threshold number of masks;

(iii)   if a data savings is possible,

(A)   selecting a background color;

(B)   if the background color is needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

(C)   determining   whether   there   are   any non-background colors in the tile; and

(D)   if there are any non-background colors in the tile:

(1)   selecting a non-background color;

(2)   generating   computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

(3)   repeating (D)(1) - (D)(2) for any additional non-background color, if any, in the tile.

43.   A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile:

(i)   identifying the colors represented in the tile;

(ii)   determining whether a data savings can be achieved by using masks to represent the tile, said data savings determination based on the required number of masks and a threshold number of masks;

(iii)   if a data savings is possible,

(A)   selecting a color in the tile;

(B)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected color as a mask;

(C)   repeating steps (A)-(B) for each additional identified color, if any, in the tile.

(44)   A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a)   dividing the image into a plurality of tiles;

(b)   for each tile;

(i)   identifying the colors represented in the tile;

(ii)   determining whether a data savings is achievable using an index to represent the colors in the tile; and

(iii)   if a data savings is achievable, representing the tile using an index.